

=> FILE REG

FILE 'REGISTRY' ENTERED ON 26 OCT 2007

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=> D HIS

FILE 'REGISTRY'

L1 E TERT-AMYL BENZENE/CN  
1 S E3  
E DI-TERT-AMYL BENZENE/CN  
E TRI-TERT-AMYL BENZENE/CN  
E BENZENE, DI-TERT-AMYL-/CN  
E BENZENE, TRI-TERT-AMYL-/CN  
E VINYLENE CARBONATE/CN  
L2 1 S E3

FILE 'HCA'

L3 244601 S (BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR  
L4 491465 S ELECTROLY?  
L5 426 S L1 OR (T OR TERT?) (2A) ((AMYL#(A) BENZENE#) OR AMYL BENZEN  
L6 1445 S L2 OR VINYLENE CARBONATE# OR VINYLENE#(2A) CARBONATE#  
L7 24 S (L3 OR L4) AND L5  
L8 801 S (L3 OR L4) AND L6  
L9 13 S L7 AND L8

FILE 'LREGISTRY'

L10 STR

FILE 'REGISTRY'

L11 181082 S (C (L) H)/ELS (L) 2/ELC.SUB  
L12 50 S L10 SSS SAM SUB=L11  
L13 8347 S L10 SSS FUL SUB=L11  
SAV L13 WIL756/A

FILE 'HCA'

L14 10036 S L13  
L15 161 S (L3 OR L4) AND L14  
L16 19 S L15 AND L5  
L17 53 S L15 AND L6  
L18 12 S L16 AND L17

FILE 'REGISTRY'

L19 STR

L20 STR  
L21 50 S L19 NOT L20 SSS SAM SUB=L13  
L22 3685 S L19 NOT L20 SSS FUL SUB=L13  
SAV L22 WIL756A/A

FILE 'HCA'

L23 7010 S L22  
L24 145 S (L3 OR L4) AND L23  
L25 19 S L24 AND L5  
L26 53 S L24 AND L6  
L27 12 S L25 AND L26

FILE 'REGISTRY'

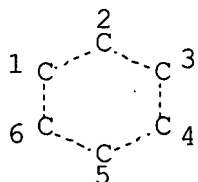
E C16H26/MF  
L28 725 S E3  
L29 183 S L28 AND 46.150.18/RID  
L31 628196 S ?DIMETHYLPROPYL?/CNS OR ?AMYL?/CNS  
L32 10 S L29 AND L31  
SEL L32 2,5,6,7 RN  
L33 4 S E1-E4  
E C21H36/MF  
L34 229 S E3  
L35 63 S L34 AND 46.150.18/RID  
L36 7 S L35 AND L31  
SEL L36 4 RN  
L37 1 S E1

FILE 'HCA'

L38 19 S L33 OR L37  
L39 0 S (L3 OR L4) AND L38  
L40 24 S L7 OR L9 OR L16 OR L18 OR L25 OR L27  
L41 8 S 1840-2002/PY,PRY AND L40  
L42 16 S L40 NOT L41  
SAV L42 WIL756B/A  
L43 24 S (L3 OR L4) AND (L5 OR L38)  
L44 53 S (L3 OR L4) AND L6 AND L23  
L45 16 S L43 NOT L41  
L46 41 S L44 NOT (L41 OR L45)  
L47 0 S 1840-2002/PY,PRY AND L45  
L48 14 S 1840-2002/PY,PRY AND L46

FILE 'REGISTRY'

=> D L22 QUE STAT  
L10 STR



Cb 9

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 9

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

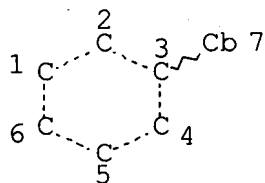
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L11 181082 SEA FILE=REGISTRY (C (L) H)/ELS (L) 2/ELC.SUB

L13 8347 SEA FILE=REGISTRY SUB=L11 SSS FUL L10

L19 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 7

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L20 STR



NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 2

STEREO ATTRIBUTES: NONE  
L22 3685 SEA FILE=REGISTRY SUB=L13 SSS FUL L19 NOT L20

100.0% PROCESSED 7773 ITERATIONS 3685 ANSWERS  
SEARCH TIME: 00.00.01

=> FILE HCA  
FILE 'HCA' ENTERED ON 26 OCT 2007  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

=> D L41 1-8 BIB ABS HITSTR HITIND

L41 ANSWER 1 OF 8 HCA COPYRIGHT 2007 ACS on STN  
AN 140:324236 HCA Full-text  
TI Nonaqueous **electrolyte** secondary **battery**  
IN Iwanaga, Masato; Fujiwara, Kazuyasu; Ohshita, Ryuji; Terasaka,  
Masayuki; Takahashi, Masatoshi  
PA Sanyo Electric Co., Ltd., Japan  
SO U.S. Pat. Appl. Publ., 13 pp.  
CODEN: USXXCO

DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2004072080	A1	20040415	US 2003-670384	200309 26
	JP 2004127543	A	20040422	JP 2002-286059	

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TW 239672	B	20050911	TW 2003-92122820	
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CN 1489235	A	20040414	CN 2003-156730	
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KR 2004028558	A	20040403	KR 2003-67263	
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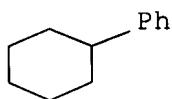
PRAI JP 2002-286059 A 20020930 <--

AB The present invention provides a nonaq. **electrolyte secondary cell** that has good high-temp. cycle characteristics and good high-temp. standing resistance, and that is highly safe enough to prevent overcharge. The nonaq. **electrolyte secondary cell** of the invention utilizes a nonaq. **electrolyte** that includes a **vinylene carbonate** deriv., a cyclic sulfite deriv., and both/either of a phenylcycloalkane deriv. and/or an alkylbenzene deriv. having a quaternary carbon directly bonded to a benzene ring.

IT **827-52-1, Phenylcyclohexane 872-36-6,**  
**Vinylene carbonate 872-36-6D,**  
**Vinylene carbonate, deriv. 2049-95-8,**  
**tert-Amylbenzene**  
 (nonaq. **electrolyte secondary battery**)

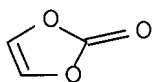
RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)

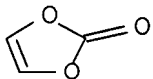


RN 872-36-6 HCA

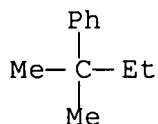
CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 872-36-6 HCA  
CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 2049-95-8 HCA  
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



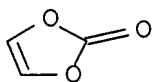
IC ICM H01M010-40  
ICS H01M004-52  
INCL 429330000; 429231300; 429340000  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST **battery** nonaq **electrolyte** secondary  
IT Secondary **batteries**  
(lithium; nonaq. **electrolyte** secondary **battery**)  
IT **Battery electrolytes**  
(nonaq. **electrolyte** secondary **battery**)  
IT Cycloalkanes  
(nonaq. **electrolyte** secondary **battery**)  
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide colio2  
21324-40-3, Lithium hexafluorophosphate  
(nonaq. **electrolyte** secondary **battery**)  
IT 827-52-1, Phenylcyclohexane 872-36-6,  
Vinylene carbonate 872-36-6D,  
Vinylene carbonate, deriv. 2049-95-8,  
tert-Amylbenzene 3741-38-6, Ethylene sulfite  
(nonaq. **electrolyte** secondary **battery**)  
L41 ANSWER 2 OF 8 HCA COPYRIGHT 2007 ACS on STN  
AN 140:202414 HCA Full-text  
TI Secondary lithium **battery**, nonaqueous **electrolyte**

, and method for ensuring **battery** safety  
 IN Abe, Hiroshi; Miyoshi, Kazuhiro; Kuwata, Takaaki; Matsumori, Yasuo  
 PA Ube Industries, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

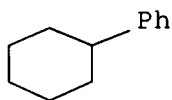
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PI	JP 2004063367	A	20040226	JP 2002-222509	20020731

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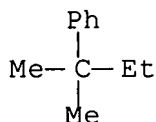
PRAI JP 2002-222509 20020731 <--  
 AB The **battery** uses a Ni or Co contg. Li multiple oxide, a Li (alloy) or Li intercalating anode, and a nonaq. **electrolyte** soln.; where the **electrolyte** soln. contains an org. compd. which decomp. to deposit a coating layer on the active Li surface, during overcharge of the **battery**, to ensure the **battery** safety. Preferably, the compd. has an redox. potential 4.6.apprx.5.2 V vs. Li, and is a ketone selected from menthone, isomenthone, camphor, nopinone, and fenchone and may be mixed with a cyclohexylbenzene deriv. The **electrolyte** soln. contains the compd.  
 IT 872-36-6, Vinylene carbonate  
 (electrolyte solns. contg. org. compd. additives for secondary lithium **battery** safety)  
 RN 872-36-6 HCA  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT 827-52-1, Cyclohexylbenzene 2049-95-8,  
 tert-Pentylbenzene  
 (org. compd. additives in **electrolyte** solns. for secondary lithium **battery** safety)  
 RN 827-52-1 HCA  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 2049-95-8 HCA  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



IC ICM H01M010-40  
 ICS H01M004-02; H01M004-40; H01M004-58  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST secondary lithium **battery electrolyte** safety  
 additive ketone cyclohexylbenzene  
 IT **Battery electrolytes**  
 Safety  
 (electrolyte solns. contg. org. compd. additives for  
 secondary lithium **battery** safety)  
 IT Secondary **batteries**  
 (lithium; **electrolyte** solns. contg. org. compd.  
 additives for secondary lithium **battery** safety)  
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
**872-36-6, Vinylene carbonate**  
 21324-40-3, Lithium hexafluorophosphate  
 (electrolyte solns. contg. org. compd. additives for  
 secondary lithium **battery** safety)  
 IT 76-22-2, Camphor 89-80-5, Menthone 98-06-6, tert-Butylbenzene  
 491-07-6, Isomenthone **827-52-1**, Cyclohexylbenzene  
 1717-84-6 **2049-95-8**, tert-Pentylbenzene 4695-62-9,  
 (+)-Fenchone 24903-95-5, Nopinone 444603-90-1  
 (org. compd. additives in **electrolyte** solns. for  
 secondary lithium **battery** safety)  
 L41 ANSWER 3 OF 8 HCA COPYRIGHT 2007 ACS on STN  
 AN 140:44762 HCA Full-text  
 TI Secondary nonaqueous **electrolyte battery**  
 IN Fujiwara, Kazuyasu; Takahashi, Masatoshi; Iwanaga, Masato  
 PA Sanyo Electric Co., Ltd., Japan



SO PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2004001889	A1	20031231	WO 2003-JP7944	20030623
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	W: CN, KR, US				
	JP 2004030991	A	20040129	JP 2002-182128	20020621
	CN 1663071	A	20050831	CN 2003-814595	20030623
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	US 2006166102	A1	20060727	US 2004-509756	20040930
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PRAI JP 2002-182128 A 20020621 <--  
WO 2003-JP7944 W 20030623

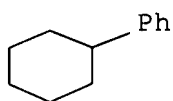
AB The **battery** has a Li-intercalating cathode, a Li-intercalating anode, and an nonaq. **electrolyte** soln. contg. a nonaq. solvent mixt. and an **electrolyte** salt; where the solvent mixt. contains a cycloalkyl benzene deriv. and an alkylbenzene deriv. having a quaternary carbon atom bonded directly to the benzene ring and not having any cycloalkyl groups bonded directly to the benzene ring.

IT 827-52-1, Cyclohexyl benzene 872-36-6,  
Vinylene carbonate 2049-95-8,  
tert-Amyl benzene

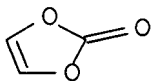
(nonaq. solvent mixts. contg. cycloalkyl benzene derivs. and alkylbenzene derivs. for secondary **battery electrolytes**)

RN 827-52-1 HCA

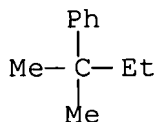
CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCA  
CN 1,3-Dioxol-2-one (CA INDEX NAME)



RN 2049-95-8 HCA  
CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



IC ICM H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST secondary **battery electrolyte** solvent cycloalkyl  
benzene alkylbenzene deriv  
IT **Battery electrolytes**  
(nonaq. solvent mixts. contg. cycloalkyl benzene derivs. and  
alkylbenzene derivs. for secondary **battery**  
**electrolytes**)  
IT 7782-42-5, Graphite, uses  
(anode; nonaq. solvent mixts. contg. cycloalkyl benzene derivs.  
and alkylbenzene derivs. for secondary **battery**  
**electrolytes**)  
IT 21324-40-3, Lithium hexafluorophosphate  
(**electrolyte** salt; nonaq. solvent mixts. contg.  
cycloalkyl benzene derivs. and alkylbenzene derivs. for secondary  
**battery electrolytes**)  
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
(nonaq. solvent mixts. contg. cycloalkyl benzene derivs. and  
alkylbenzene derivs. for secondary **battery**  
**electrolytes**)  
IT 827-52-1, Cyclohexyl benzene 872-36-6,  
Vinylene carbonate 2049-95-8,  
tert-Amyl benzene  
(nonaq. solvent mixts. contg. cycloalkyl benzene derivs. and

alkylbenzene deriys. for secondary **battery**  
**electrolytes**)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 4 OF 8 HCA COPYRIGHT 2007 ACS on STN  
AN 137:143036 HCA Full-text  
TI Nonaqueous **electrolyte** solution and secondary lithium  
**battery**  
IN Abe, Koji; Matsumori, Yasuo; Ueki, Akira  
PA Ube Industries, Ltd., Japan  
SO PCT Int. Appl., 30 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2002059999	A1	20020801	WO 2002-JP518	200201 24

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GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,  
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,  
SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG

JP 2002298909	A	20021011	JP 2002-1107	200201 08
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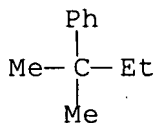
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HK 1064216	A1	20061110	HK 2004-106907	200409 10
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PRAI	JP 2001-15466	A	20010124	<--
	JP 2001-15467	A	20010124	<--
	WO 2002-JP518	W	20020124	<--
OS	MARPAT 137:143036			
AB	The <b>electrolyte</b> soln., for secondary Li <b>batteries</b> , contains 0.1-10% tert-alkylbenzene and 0.1-1.5% biphenyl derivs. Preferably, the alkylbenzene has 1-5 tert-alkyl groups connected to a benzene ring, where each tert-alkyl group has 3 C1-4 alkyl groups connected to a C atom. Another type of the <b>electrolyte</b> soln. contains 0.1-20% tert-alkylbenzene, where the tert-alkyl group is a C5-13 group. The secondary Li <b>battery</b> uses either <b>electrolyte</b> soln.			
IT	2049-95-8, tert-Pentylbenzene ( <b>electrolyte</b> solns. contg. tert-alkylbenzene and biphenyl derivs. for secondary lithium <b>batteries</b> )			
RN	2049-95-8 HCA			
CN	Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)			



IC ICM H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST secondary lithium **battery electrolyte** tertiary  
 alkylbenzene biphenyl  
 IT **Battery electrolytes**  
 (electrolyte solns. contg. tert-alkylbenzene and  
 biphenyl derivs. for secondary lithium **batteries**)  
 IT 84-15-1, o-Terphenyl 92-52-4, Biphenyl, uses 96-49-1, Ethylene  
 carbonate 98-06-6, tert-Butylbenzene 105-58-8, Diethyl carbonate  
 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate  
 623-53-0, Methyl ethyl carbonate 644-08-6, 4-Methylbiphenyl  
 2049-95-8, tert-Pentylbenzene 4170-84-7,  
 (1,1-Diethylpropyl)benzene 4237-70-1 21324-40-3, Lithium  
 hexafluorophosphate 444603-90-1  
 (electrolyte solns. contg. tert-alkylbenzene and  
 biphenyl derivs. for secondary lithium **batteries**)  
 RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 5 OF 8 HCA COPYRIGHT 2007 ACS on STN  
 AN 136:297434 HCA Full-text  
 TI Secondary lithium **battery** and nonaqueous  
**electrolyte** solution  
 IN Hamamoto, Toshikazu; Ueki, Akira; Abe, Koji; Miyoshi, Kazuhiro  
 PA Ube Industries, Ltd., Japan  
 SO PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese

FAN.CNT 1  

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002029922	A1	20020411	WO 2001-JP8724	20011003

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GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,  
 LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
 NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
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AU 200192346                    A            20020415            AU 2001-92346  
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CA 2424735                    A1            20030402            CA 2001-2424735  
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PRAI JP 2000-303641                    A            20001003            <--  
 JP 2001-15468                    A            20010124            <--  
 JP 2002-533427                    A3            20011003            <--  
 WO 2001-JP8724                    W            20011003            <--

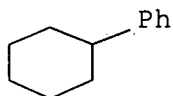
JP 2005-347657 A3 20051201

AB The **battery** has a Co Li oxide or Li Ni oxide cathode, a Li (alloy) or Li intercalating carbonaceous anode, and a nonaq. **electrolyte** soln.; where the **electrolyte** soln. contains a dissolved org. compd., which decomps. during overcharge to form a decompn. product that dissolves Co or Ni from the cathode and deposit in on the anode, to prevent vigorous heating during overcharge. The nonaq. **electrolyte** soln. contains an org compd. having an oxidn. potential of 4.6-5.0 V vs Li, and is preferably a tert-alkylbenzene deriv.

IT **827-52-1**, Cyclohexylbenzene **2049-95-8**,  
tert-Pentylbenzene  
(nonaq. **electrolyte** solns. contg. alkylbenzene derivs.  
for overcharge protection in secondary lithium **batteries**  
)

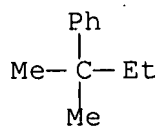
RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 2049-95-8 HCA

CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** overcharge protection  
**electrolyte** additive; tertiary alkylbenzene deriv lithium  
**battery** overcharge protection

IT **Battery electrolytes**  
(nonaq. **electrolyte** solns. contg. alkylbenzene derivs. .  
for overcharge protection in secondary lithium **batteries**  
)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
108-32-7, Propylene carbonate 21324-40-3, Lithium  
hexafluorophosphate

(nonaq. **electrolyte** solns. contg. alkylbenzene derivs.  
for overcharge protection in secondary lithium **batteries**  
)

IT 98-06-6, tert-Butylbenzene **827-52-1**, Cyclohexylbenzene  
**2049-95-8**, tert-Pentylbenzene 3972-65-4,  
1-Bromo-4-tert-butylbenzene

(nonaq. **electrolyte** solns. contg. alkylbenzene derivs.  
for overcharge protection in secondary lithium **batteries**  
)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 6 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 134:46039 HCA Full-text

TI Characterization of emissions from diffusion flare systems

AU Strosher, Mel T.

CS Alberta Research Council, Calgary, AB, Can.

SO Journal of the Air & Waste Management Association (2000),  
50(10), 1723-1733

CODEN: JAWAFC; ISSN: 1096-2247

PB Air & Waste Management Association

DT Journal

LA English

AB Emissions from flares typical like at oil-field **battery** sites in  
Alberta, Canada, were examd. to det. the degree to which the flared  
gases were burned and to characterize the combustion products in the  
emissions. The study consisted of lab.-, pilot-scale, and field-  
scale investigations. Combustion of all hydrocarbon fuels in lab.-  
and pilot-scale tests produced a complex variety of hydrocarbon  
products within the flame, primarily by pyrolytic reactions.  
Acetylene, ethylene, benzene, styrene, ethynyl benzene, and  
naphthalene were the major constituents produced by conversion of  
>10% of the CH<sub>4</sub> within the flames. A majority of hydrocarbons  
produced within pure gas fuel flames were effectively destroyed in  
the outer combustion zone, resulting in combustion efficiencies >98%  
as measured in the emissions. Adding liq. hydrocarbon fuels or  
condensates to pure gas streams had the largest effect on impairing  
the ability of the resulting flame to destroy pyrolytically-produced  
hydrocarbons as well as original hydrocarbon fuels directed to the  
flare. Cross-winds also reduced combustion efficiency (CE) of co-  
flowing gas/condensate flames by causing more unburned fuel and  
pyrolytically-produced hydrocarbons to escape into the emissions.  
Flaring soln. gas at oil-field **battery** sites burned with an  
efficiency of 62-82%, depending on how much fuel was directed to  
flare or how much liq. hydrocarbon was in the knockout drum. In most  
cases, benzene, styrene, ethynyl benzene, ethynyl-Me benzenes,  
toluene, xylenes, acenaphthylene, biphenyl, and fluorene were the

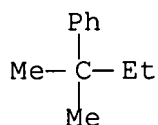


most abundant compds. in any emissions examd. in field flare testing. Emissions from sour soln. gas flaring also contained reduced S compds. and thiophenes.

IT 2049-95-8, (1,1-Dimethylpropyl)benzene  
(flame type, condensates and other liq. droplets during gaseous fuel flaring, and cross-winds effect on chem. compn. of oil and gas industry diffusion flare system emissions, Canada)

RN 2049-95-8 HCA

CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



CC 59-4 (Air Pollution and Industrial Hygiene)  
Section cross-reference(s): 51

IT 50-32-8, Benzo(a)pyrene, occurrence 65-85-0, Benzoic acid, occurrence 71-43-2, Benzene, occurrence 86-73-7, 9H-Fluorene 90-00-6, 2-Ethylphenol 90-12-0, 1-Methylnaphthalene 91-20-3, Naphthalene, occurrence 91-57-6, 2-Methylnaphthalene 92-52-4, 1,1'-Biphenyl, occurrence 95-48-7, 2-Methylphenol, occurrence 95-63-6, 1,2,4-Trimethylbenzene 95-87-4, 2,5-Dimethylphenol 95-93-2, 1,2,4,5-Tetramethylbenzene 98-82-8, (1-Methylethyl)-benzene 99-87-6, 1-Methyl-4-(1-methylethyl)benzene 100-41-4, Ethylbenzene, occurrence 100-42-5, Ethenylbenzene, occurrence 103-65-1, Propylbenzene 104-87-0, 4-Methylbenzaldehyde 106-42-3, 1,4-Dimethylbenzene, occurrence 106-44-5, 4-Methylphenol, occurrence 108-67-8, 1,3,5-Trimethylbenzene, occurrence 108-68-9, 3,5-Dimethylphenol 108-87-2, Methylcyclohexane 108-88-3, Methylbenzene, occurrence 109-66-0, Pentane, occurrence 110-54-3, Hexane, occurrence 110-82-7, Cyclohexane, occurrence 111-65-9, Octane, occurrence 111-84-2, Nonane 112-40-3, Dodecane 120-12-7, Anthracene, occurrence 124-18-5, Decane 129-00-0, Pyrene, occurrence 142-82-5, Heptane, occurrence 192-97-2, Benzo(e)pyrene 203-64-5, 4H-Cyclopenta(def)phenanthrene 206-44-0, Fluoranthene 208-96-8, Acenaphthylene 217-59-4, Triphenylene 218-01-9, Chrysene 232-95-1, Naphtho[2,1-B]furan 238-84-6, 11H-Benzo(a)fluorene 243-17-4, 11H-Benzo(b)fluorene 259-79-0, Biphenylene 488-23-3, 1,2,3,4-Tetramethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 536-74-3, Ethynylbenzene 562-49-2, 3,3-Dimethylpentane 571-58-4, 1,4-Dimethylnaphthalene 571-61-9, 1,5-Dimethylnaphthalene 575-37-1, 1,7-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene 589-34-4,

3-Methylhexane 611-14-3, 1-Ethyl-2-methylbenzene 611-15-4,  
 1-Ethenyl-2-methyl-benzene 613-12-7, 2-Methylantracene  
 613-59-2, 2-(Phenylmethyl)naphthalene 619-99-8, 3-Ethylhexane  
 620-83-7, 1-Methyl-4-(phenylmethyl)benzene 638-04-0,  
 cis-1,3-Dimethylcyclohexane 643-93-6, 3-Methyl-1,1'-biphenyl  
 700-12-9, Pentamethylbenzene 713-36-0, 1-Methyl-2-  
 (phenylmethyl)benzene 832-71-3, 3-Methylphenanthrene 844-51-9,  
 2,5-Cyclohexadiene-1,4-dione, 2,5-Diphenyl- 886-66-8, Benzene,  
 1,1'-(1,3-Butadiyne-1,4-diyl)bis- 922-28-1, 3,4-Dimethylheptane  
 933-98-2, 1-Ethyl-2,3-dimethylbenzene 934-80-5,  
 4-Ethyl-1,2-dimethylbenzene 939-27-5, 2-Ethyl-naphthalene  
 1074-17-5, 1-Methyl-2-propylbenzene 1120-21-4, Undecane  
 1196-58-3, (1-Ethylpropyl)benzene 1430-97-3, 2-Methyl-9H-fluorene  
 1576-67-6, 3,6-Dimethylphenanthrene 1678-91-7, Ethylcyclohexane  
 1678-98-4, (2-Methylpropyl)-cyclohexane 1730-37-6,  
 1-Methyl-9H-fluorene 1812-51-7, 1,1'-Biphenyl, 2-Ethyl-  
 1839-63-0, 1,3,5-Trimethylcyclohexane **2049-95-8**,  
 (1,1-Dimethylpropyl)benzene 2050-24-0, 1,3-Diethyl-5-methylbenzene  
 2051-30-1, 2,6-Dimethyloctane 2131-41-1, 1,4,5-  
 Trimethylnaphthalene 2131-42-2, 1,4,6-Trimethylnaphthalene  
 2206-23-7, 3-Penten-1-yne 2234-75-5, 1,2,4-Trimethylcyclohexane  
 2452-99-5, 1,2-Dimethylcyclopentane 2531-84-2,  
 2-Methylphenanthrene 2610-95-9 3061-36-7, 1,4-Diphenoxybenzene  
 3379-37-1, Benzene, 1,2-Diphenoxy- 3442-78-2, 2-Methylpyrene  
 3674-65-5, 2,3-Dimethylphenanthrene 3674-66-6,  
 2,5-Dimethylphenanthrene 3674-73-5, 2,3,5-Trimethylphenanthrene  
 3855-26-3, 2-Ethyl-4-methylphenol 4425-82-5, 9-Methylene-9H-  
 fluorene 4489-84-3, (3-Methyl-2-butenyl)benzene 4612-63-9,  
 2,3-Dimethyl-9H-fluorene 4957-14-6 5911-04-6, 3-Methylnonane  
 6975-92-4, 2,5-Dimethyl-1-hexene 13151-34-3, 3-Methyldecane  
 14064-48-3 17057-82-8 17302-23-7, 4,5-Dimethylnonane  
 21895-13-6 21895-16-9 22364-43-8 25155-15-1,  
 Methyl(1-methylethyl)benzene 25340-17-4, Diethylbenzene  
 29053-04-1, Cyclopentane, 1-Methyl-3-(2-methylpropyl)- 55712-60-2,  
 Benzo(b)thiophene, 3-(2-Naphthalenyl)- 61142-07-2 74685-42-0,  
 1-Methyl-2-(2-phenylethenyl)benzene

(flame type, condensates and other liq. droplets during gaseous  
 fuel flaring, and cross-winds effect on chem. compn. of oil and  
 gas industry diffusion flare system emissions, Canada)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

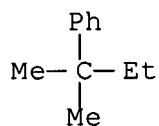
L41 ANSWER 7 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 106:14901 HCA Full-text

TI Studies on biomimetic membranes IX. Ionic permeability and  
 stability of supported liquid membranes

AU Kikkawa, Masayoshi; Sugiura, Masaaki; Shinbo, Toshio; Yamaguchi,

Tomohiko; Nishimura, Koichiro; Fukaya, Toshio; Kodaka, Masato  
 CS Natl. Chem. Lab. Ind., Japan  
 SO Kagaku Gijutsu Kenkyusho Hokoku (1986), 81(6), 301-7  
 CODEN: KGKHEP; ISSN: 0388-3213  
 DT Journal  
 LA Japanese  
 AB The up-hill transport rate of picrate anion across supported liq. membranes, prepd. from various org. liqs. and contg. K<sup>+</sup> carriers, and the membrane potential with elapsed time were measured. The ionic permeability and stability of the liq. membranes and the carrier-mediated transport were discussed. When the arom. compds. such as nitrophenol derivs., arom. ethers, alkylbenzenes, and alkylbenzoates were used as the org. liq., a large flux of picrate anion was obsd. in most of these liq. membranes. In addn., the changes of membrane potentials were small because of high stability of the membranes. On the other hand, the picrate-ion flux for the alkyl dicarboxylates was small except for their Bu esters. In the case of glycerides and phosphates, the picrate flux was affected by the type of carrier. Most of these liq. membranes showed a high stability.  
 IT **2049-95-8, tert-Amylbenzene**  
 (liq. membranes, ionic permeability and stability of potassium carrier-contg.)  
 RN 2049-95-8 HCA  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



CC 6-6 (General Biochemistry)  
 Section cross-reference(s): 22  
 IT **Electrolytes**  
 (permeability of org. liq. membranes contg. potassium carriers to)  
 IT 60-01-5, Tri-n-butylin 78-30-8 78-32-0 78-42-2 99-62-7,  
 m-Diisopropylbenzene 100-18-5, p-Di-iso-propylbenzene 101-81-5,  
 Diphenylmethane 101-84-8, Diphenyl ether 102-25-0,  
 1,3,5-Triethylbenzene 103-23-1 103-50-4, Dibenzyl ether  
 105-05-5, p-Diethylbenzene 105-75-9, Fumaric acid di-n-butyl ester  
 105-76-0, Maleic acid di-n-butyl ester 105-99-7, Adipic acid  
 di-n-butyl ester 106-19-4, Adipic acid di-n-propyl ester  
 109-43-3, Sebacic acid di-n-butyl ester 111-03-5,  
 α-Monoolein 112-80-1, Oleic acid, properties 120-50-3,

Benzoic acid iso-butyl ester 122-62-3, Sebacic acid di  
 (2-ethylhexyl) ester 123-25-1, Succinic acid diethyl ester  
 135-01-3, o-Diethylbenzene 136-60-7, Benzoic acid n-butyl ester  
 141-04-8, Adipic acid di-iso-butyl ester 141-05-9, Maleic acid  
 diethyl ester 141-28-6, Adipic acid diethyl ester 141-93-5,  
 m-Diethylbenzene 142-77-8 298-07-7 538-23-8 538-68-1,  
 n-Amylbenzene 621-70-5 622-08-2, 2-(Benzyloxy) ethanol  
 624-48-6 627-93-0, Adipic acid dimethyl ester 939-48-0, Benzoic  
 acid iso-propyl ester 1077-16-3 1078-71-3 **2049-95-8**,  
**tert-Amylbenzene** 2049-96-9 2216-12-8,  
 o-Nitrophenyl phenyl ether 2287-83-4 2998-04-1, Adipic acid  
 diallyl ester 4074-90-2, Adipic acid divinyl ester 6938-94-9,  
 Adipic acid di-isopropyl ester 7664-38-2D, esters 13023-13-7  
 13565-36-1, p-Nitrophenyl heptyl ether 15440-98-9, p-Nitrophenyl  
 hexyl ether 16507-61-2, Oleyl chloride 37682-29-4, o-Nitrophenyl  
 octyl ether 82052-70-8

(liq. membranes, ionic permeability and stability of potassium  
 carrier-contg.)

L41 ANSWER 8 OF 8 HCA COPYRIGHT 2007 ACS on STN

AN 51:85587 HCA Full-text

OREF 51:15454b-d

TI The **electrolysis** of some 3-arylpropionic acids;  
 isomerization of free radicals

AU Breederveld, H.; Kooyman, E. C.

CS Royal Dutch/Shell Group, Amsterdam

SO Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (  
**1957**), 76, 297-321

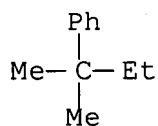
CODEN: RTCPB4; ISSN: 0370-7539

DT Journal

LA English

AB The **electrolysis** of some substituted 3-arylpropionic acids and  
 possible rearrangement of free radicals formed through discharge of  
 anions was investigated. PhCMe<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>H in MeOH with excess AcONa  
 gave 27 mole-% **tert-amylbenzene**, 4% bineophyl (PhCMe<sub>2</sub>CH<sub>2</sub>)<sub>2</sub> (I), 7%  
 styrenes, and 15% recovered acid; unidentified O compds. amounted to  
 25% by wt. of the acid. Ph<sub>3</sub>CCH<sub>2</sub>CO<sub>2</sub>H (II), in MeOH contg. Na ions  
 gave chiefly Ph<sub>2</sub>C(OMe)CH<sub>2</sub>CO<sub>2</sub>Ph. Similarly, (p-Me<sub>3</sub>CC<sub>6</sub>H<sub>4</sub>)<sub>3</sub>CCH<sub>2</sub>CO<sub>2</sub>H  
 (III) gave p-Me<sub>3</sub>CC<sub>6</sub>H<sub>4</sub> ester (IV) of (p-Me<sub>3</sub>CC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C(OMe)CH<sub>2</sub>CO<sub>2</sub>H. New  
 compds. prepd. were: III, m. 251-3°; IV, m. 180-1°; I, m. 60-1°;  
 Ph<sub>2</sub>C(OH)CH<sub>2</sub>CO<sub>2</sub>Me, m. 105-6°; Ph<sub>2</sub>C(OMe)CH<sub>2</sub>CO<sub>2</sub>Me (V), m. 52-4°; (p-  
 Me<sub>3</sub>CC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>C(OH)CH<sub>2</sub>CO<sub>2</sub>Me, m. 156-8°; p-Me<sub>3</sub>CCH :-CHCO<sub>2</sub>Me, m. 69-70°,  
 and the free acid, m. 198-9°; MeO-CH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>Ph (VI), b<sub>8</sub> 120°, n<sub>D</sub><sup>20</sup>  
 1.4960; Ph<sub>2</sub>CHCH<sub>2</sub>CO<sub>2</sub>Ph, (VIII), m. 84-5°. The following new CO-  
 stretching frequencies (μ) in the infrared were detd.: VII, 5.68; VI,  
 5.68; EtCO<sub>2</sub>Ph, 5.66; Ph<sub>2</sub>CHCH<sub>2</sub>CO<sub>2</sub>Me, 5.75; MeOCH<sub>2</sub>CH<sub>2</sub>CO<sub>2</sub>Me, 5.75; V,  
 5.75.

IT 2049-95-8P, Benzene, tert-pentyl-  
 (formation by **electrolysis** of  $\beta,\beta$ -  
 dimethylhydrocinnamic acid)  
 RN 2049-95-8 HCA  
 CN Benzene, (1,1-dimethylpropyl)- (CA INDEX NAME)



CC 10 (Organic Chemistry)  
 IT Radicals  
 (isomerization in **electrolysis** of hydrocinnamic acid  
 derivs.)  
 IT Rearrangements  
 (of free radicals in **electrolysis** of hydrocinnamic acid  
 derivs.)  
 IT 501-52-0, Hydrocinnamic acid  
 (derivs., **electrolysis** of)  
 IT 900-91-4, Propionic acid, 3,3,3-triphenyl- 1010-48-6,  
 Hydrocinnamic acid,  $\beta,\beta$ -dimethyl- 103327-71-5, Propionic  
 acid, 3,3,3-tris(p-tert-butylphenyl)-  
 (**electrolysis** of)  
 IT 2049-95-8P, Benzene, tert-pentyl- 17648-05-4P, Hexane,  
 2,5-dimethyl-2,5-diphenyl-  
 (formation by **electrolysis** of  $\beta,\beta$ -  
 dimethylhydrocinnamic acid)

=> D L48 1-14 BIB ABS HITSTR HITIND

L48 ANSWER 1 OF 14 HCA COPYRIGHT 2007 ACS on STN  
 AN 140:378028 HCA Full-text  
 TI Nonaqueous **electrolytic** solution containing specific  
 amount of phosphinic ester compound and nonaqueous  
**electrolyte** secondary **battery** containing the same  
 IN Noda, Daisuke; Onuki, Masamichi; Shima, Kunihiisa  
 PA Mitsubishi Chemical Corporation, Japan  
 SO PCT Int. Appl., 48 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO. ----- -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
PI	WO 2004038846	A1	20040506	WO 2003-JP13432	200310 21
	<--				
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU	2003280566	A1	20040513	AU 2003-280566	200310 21
	<--				
JP	2004363077	A	20041224	JP 2003-361115	200310 21
	<--				
EP	1555711	A1	20050720	EP 2003-769911	200310 21
	<--				
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN	1685556	A	20051019	CN 2003-80100013	200310 21
	<--				
JP	2004221054	A	20040805	JP 2003-369589	200310 29
	<--				
US	2005014071	A1	20050120	US 2004-855489	200405 28
	<--				
US	7169511	B2	20070130		

US 2007087270

A1

20070419

US 2006-558070

200611  
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PRAI JP 2002-306901 A 20021022 <--  
JP 2002-372323 A 20021224 <--  
JP 2003-136322 A 20030514  
WO 2003-JP13432 W 20031021  
US 2004-855489 A1 20040528

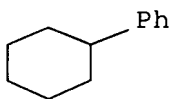
AB Disclosed are an **electrolytic** soln. and secondary **battery** that inhibit deterioration of **battery** performance at high-temp. storage or high-temp. continuous charging. In particular, a nonaq. **electrolytic** soln. for secondary **battery** comprising a solute, a phosphinic ester compd. and a nonaq. org. solvent contg. these, characterized in that the content of phosphinic ester compd. is regulated to a given level relative to the total wt. of nonaq. **electrolytic** soln.

IT 827-52-1, Cyclohexylbenzene 872-36-6,  
**Vinylene carbonate**

(nonaq. **electrolytic** soln. contg. specific amt. of  
phosphinic ester compd. for lithium secondary **battery**)

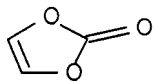
RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq **electrolyte** soln phosphinic ester compd secondary  
**battery; lithium secondary battery**

IT Secondary **batteries**

(lithium; nonaq. **electrolytic** soln. contg. specific

amt. of phosphinic ester compd. for lithium secondary  
**battery**)

IT **Battery electrolytes**

(nonaq. **electrolytic** soln. contg. specific amt. of  
phosphinic ester compd. for lithium secondary **battery**)

IT 2950-47-2, Butyl dibutylphosphinate 4775-09-1, Ethyl  
diethylphosphinate 6389-79-3, Methyl methylphenylphosphinate  
7163-67-9, Methyl dibutylphosphinate

(nonaq. **electrolytic** soln. contg. specific amt. of  
phosphinic ester compd. for lithium secondary **battery**)

IT 827-52-1, Cyclohexylbenzene 872-36-6,

**Vinylene carbonate**

(nonaq. **electrolytic** soln. contg. specific amt. of  
phosphinic ester compd. for lithium secondary **battery**)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 2 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 140:378001 HCA Full-text

TI Secondary nonaqueous **electrolyte battery**

IN Matsui, Toru; Deguchi, Masaki; Sonoda, Kumiko; Nishimura, Makiko;  
Koshina, Shigeru

PA Matsushita Electric Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2004134261	A	20040430	JP 2002-298206
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200210

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PRAI JP 2002-298206 20021011 <--

AB The **battery** comprises a cathode, an anode, and a nonaq. **electrolyte**  
soln., having a solute dissolved in a solvent mixt. which contains a  
main solvent and a secondary solvent; where the secondary solvent  
comprises a compd. A, selected from cyclohexyl benzene, biphenyl,  
and/or di-Ph ether, and a compd. X whose oxidn. potential is 0.1-0.4  
V higher than that of the compd. A; and the wt. ratio of the  
secondary solvent to the solvent mixt. and the compd. X to the  
secondary solvent is 0.01-5 and 20-99 resp.

IT 827-52-1, Cyclohexyl benzene 872-36-6,

**Vinylene carbonate**

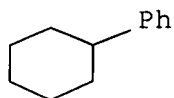
(**electrolyte** solvents contg. carbonates and arom.



compds. for secondary **batteries**)

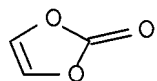
RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery** nonaq **electrolyte** solvent  
carbonate arom compd

IT **Battery electrolytes**

(**electrolyte** solvents contg. carbonates and arom.  
compds. for secondary **batteries**)

IT 92-52-4, Biphenyl, uses 96-48-0,  $\gamma$ -Butyrolactone 96-49-1,  
Ethylene carbonate 98-82-8 100-41-4, Phenyl ethane, uses  
101-81-5, Diphenyl methane 101-84-8, Diphenyl ether 105-58-8,  
Diethyl carbonate 108-88-3, Phenyl methane, uses 321-60-8,  
2-Fluorobiphenyl 330-93-8, Bis(4-fluorophenyl) ether 362-59-4,  
2-Trifluoromethyl biphenyl 396-64-5 519-73-3, Triphenyl methane  
527-21-9, Tetrafluoro-p-benzoquinone 623-53-0, Ethyl methyl  
carbonate 791-28-6, Triphenylphosphine oxide **827-52-1**,  
Cyclohexyl benzene **872-36-6**, **Vinylene**  
**carbonate** 960-71-4, Triphenyl borane 2367-02-4,  
4-Trifluoromethyl diphenyl ether 14283-07-9, Lithium  
tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate  
142990-38-3 142990-39-4 684215-50-7 684215-51-8

(**electrolyte** solvents contg. carbonates and arom.  
compds. for secondary **batteries**)

L48 ANSWER 3 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 140:202476 HCA Full-text

TI Secondary nonaqueous **electrolyte battery** and

nonaqueous **electrolyte** solution

IN Kotado, Minoru; Kinoshita, Shinichi

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

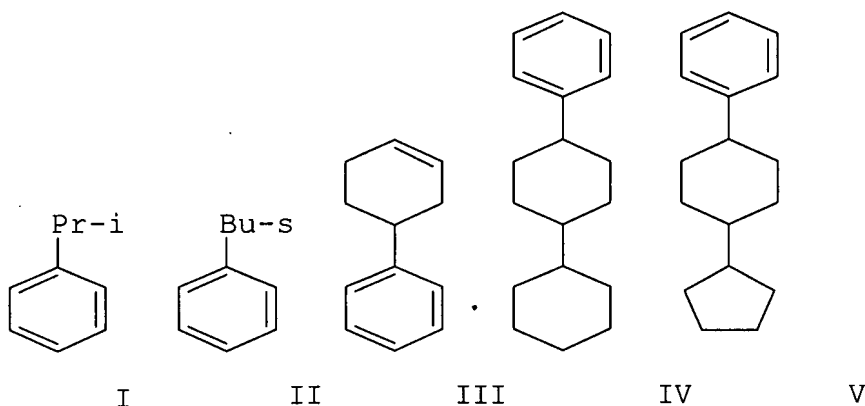
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2004071459	A	20040304	JP 2002-231475	20020808

PRAI JP 2002-231475 20020808 <--

GI



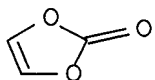
AB The **battery** has a Li-intercalating cathode, a Li-intercalating anode, and an **electrolyte** soln. contg. a nonaq. solvent mixt. and a Li salt; where the solvent mixt. contains 0.01-10 % cyclohexyl benzene and compd. I - V having total content  $\leq 5000$  ppm vs. the cyclohexyl benzene.

IT 872-36-6, Vinylene carbonate

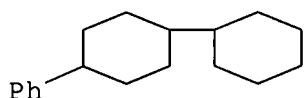
20273-27-2 663619-88-3

(**electrolyte** solns. contg. cyclohexyl benzene and benzene derivs. for secondary **batteries**)

RN 872-36-6 HCA  
CN 1,3-Dioxol-2-one (CA INDEX NAME)



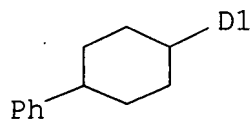
RN 20273-27-2 HCA  
CN Benzene, [1,1'-bicyclohexyl]-4-yl- (9CI) (CA INDEX NAME)



RN 663619-88-3 HCA  
CN Benzene, [4-(methylcyclopentyl)cyclohexyl]- (9CI) (CA INDEX NAME)



D1-Me



IC ICM H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST secondary **battery electrolyte** benzene deriv  
cyclohexyl benzene  
IT **Battery electrolytes**  
Secondary **batteries**  
(**electrolyte** solns. contg. cyclohexyl benzene and  
benzene derivs. for secondary **batteries**)  
IT 96-49-1, Ethylene carbonate 98-82-8, Isopropyl benzene 538-93-2,  
Isobutyl benzene 623-53-0, Ethyl methyl carbonate **872-36-6**  
, **Vinylene carbonate** 4994-16-5 7782-42-5,

Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
20273-27-2 21324-40-3, Lithium hexafluorophosphate  
663619-88-3

(**electrolyte** solns. contg. cyclohexyl benzene and  
benzene derivs. for secondary **batteries**)

L48 ANSWER 4 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 140:184751 HCA Full-text

TI Secondary lithium **battery** nonaqueous **electrolytes**  
and secondary lithium **batteries** with prevented  
overcharging

IN Shizuka, Kenji; Kinoshita, Shinichi; Noda, Daisuke

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2004063114	A	20040226	JP 2002-216090	20020725

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PRAI JP 2002-216090 20020725 <--

OS MARPAT 140:184751

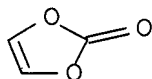
AB Li salt-contg. nonaq. **electrolytes** also contg. overcharging  
inhibitors and (di)sulfides are claimed. Preferable structure for  
the the overcharging inhibitor is C<sub>6</sub>R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>R<sub>5</sub>R<sub>6</sub> (R<sub>1</sub>-R<sub>6</sub> = H, halogen,  
(un)substituted hydrocarbon, alkoxy, aryloxy; R<sub>1</sub> + R<sub>2</sub> may form  
(un)substituted , phenyleneoxy, ethyleneoxy, trimethyleneoxy,  
propenyleneoxy, vinyleneoxy). Preferable overcharging inhibitors and  
(di)sulfides are also given.

IT 872-36-6, **Vinylene carbonate**

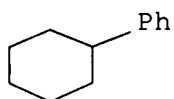
(**electrolyte** solvent; lithium secondary  
**batteries** with nonaq. **electrolytes** contg.  
overcharging inhibitors and disulfides)

RN 872-36-6 HCA

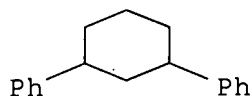
CN 1,3-Dioxol-2-one (CA INDEX NAME)



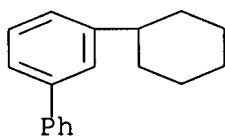
IT 827-52-1, Cyclohexylbenzene 1667-08-9  
1973-15-5, 3-Cyclohexylbiphenyl 4016-06-2,  
1,3-Dicyclohexylbenzene 20273-26-1  
(overcharging inhibitor; lithium secondary **batteries**  
with nonaq. **electrolytes** contg. overcharging inhibitors  
and disulfides)  
RN 827-52-1 HCA  
CN Benzene, cyclohexyl- (CA INDEX NAME)



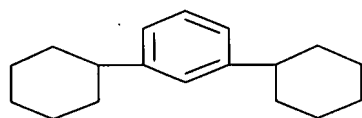
RN 1667-08-9 HCA  
CN Benzene, 1,1'-(1,3-cyclohexanediyl)bis- (9CI) (CA INDEX NAME)



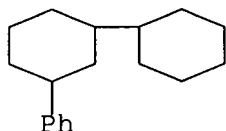
RN 1973-15-5 HCA  
CN 1,1'-Biphenyl, 3-cyclohexyl- (CA INDEX NAME)



RN 4016-06-2 HCA  
CN Benzene, 1,3-dicyclohexyl- (CA INDEX NAME)



RN 20273-26-1 HCA  
CN Benzene, [1,1'-bicyclohexyl]-3-yl- (CA INDEX NAME)



IC ICM H01M010-40  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 25, 27  
ST nonaq **electrolyte** lithium secondary **battery**;  
overcharging inhibitor lithium secondary **battery**  
**electrolyte**; disulfide additive lithium secondary  
**battery electrolyte**  
IT Disulfides  
(**electrolytes** contg.; lithium secondary  
**batteries** with nonaq. **electrolytes** contg.  
overcharging inhibitors and disulfides)  
IT **Battery electrolytes**  
(lithium secondary **batteries** with nonaq.  
**electrolytes** contg. overcharging inhibitors and  
disulfides)  
IT Secondary **batteries**  
(lithium; lithium secondary **batteries** with nonaq.  
**electrolytes** contg. overcharging inhibitors and  
disulfides)  
IT 21324-40-3, Lithium hexafluorophosphate (LiPF<sub>6</sub>)  
(**electrolyte** salt; lithium secondary **batteries**  
with nonaq. **electrolytes** contg. overcharging inhibitors  
and disulfides)  
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate  
**872-36-6, Vinylene carbonate**  
(**electrolyte** solvent; lithium secondary  
**batteries** with nonaq. **electrolytes** contg.  
overcharging inhibitors and disulfides)  
IT 2127-03-9, 2,2'-Dipyridyl disulfide 2127-10-8,  
2,2'-Dithiobis(5-nitropyridine) 2645-22-9, 4,4'-Dipyridyl  
disulfide 15658-35-2, 6,6'-Dithiodinicotinic acid  
(**electrolytes** contg.; lithium secondary  
**batteries** with nonaq. **electrolytes** contg.  
overcharging inhibitors and disulfides)  
IT 92-52-4, Biphenyl, uses 95-72-7, 2-Chloro-p-xylene 101-81-5,

Diphenylmethane 101-84-8, Diphenyl ether 103-29-7,  
 1,2-Diphenylethane 104-66-5, 1,2-Diphenoxyethane 104-92-7,  
 4-Bromoanisole 132-64-9, Dibenzofuran 321-60-8, 2-Fluorobiphenyl  
 324-74-3, 4-Fluorobiphenyl 362-56-1, 1,2,4,5-Tetrafluoro-3,6-  
 dimethoxybenzene 392-69-8, 2-Fluoromesitylene 396-64-5,  
 3,3'-Difluorobiphenyl 398-23-2, 4,4'-Difluorobiphenyl 452-10-8,  
 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9,  
 4-Fluoroanisole 583-70-0, 4-Bromo-m-xylene 612-75-9,  
 3,3'-Dimethylbiphenyl 613-33-2, 4,4'-Dimethylbiphenyl 615-60-1,  
 4-Chloro-o-xylene 623-12-1, 4-Chloroanisole 643-58-3,  
 2-Methylbiphenyl 643-93-6, 3-Methylbiphenyl 644-08-6,  
 4-Methylbiphenyl 766-51-8, 2-Chloroanisole 778-22-3,  
 2,2-Diphenylpropane **827-52-1**, Cyclohexylbenzene  
 1625-92-9, 4-tert-Butylbiphenyl **1667-08-9**  
**1973-15-5**, 3-Cyclohexylbiphenyl 2845-89-8, 3-Chloroanisole  
 3061-36-7, 1,4-Diphenoxybenzene 3150-40-1, 2,3,5,6-Tetrafluoro-4-  
 methylanisole 3379-38-2, 1,3-Diphenoxybenzene **4016-06-2**,  
 1,3-Dicyclohexylbenzene 6738-04-1, 2-Phenoxybiphenyl 7051-16-3,  
 1,3-Dimethoxy-5-chlorobenzene 17715-69-4, 1,3-Dimethoxy-4-  
 bromobenzene **20273-26-1** 25245-34-5 26140-60-3,  
 Terphenyl 52189-63-6, 1-Fluoro-3,5-dimethoxybenzene 82830-49-7,  
 1,4-Dimethoxy-2-fluorobenzene 93343-10-3, 3,5-Difluoroanisole  
 97762-38-4 258268-48-3

(overcharging inhibitor; lithium secondary **batteries**  
 with nonaq. **electrolytes** contg. overcharging inhibitors  
 and disulfides)

L48 ANSWER 5 OF 14 HCA COPYRIGHT 2007 ACS on STN  
 AN 140:184697 HCA Full-text  
 TI Secondary nonaqueous **battery** and electronic device using  
 the **battery**  
 IN Kita, Fusaji; Higashiguchi, Masaharu; Sakata, Hideo  
 PA Hitachi Maxell Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2004055253	A	20040219	JP 2002-209221	200207 18

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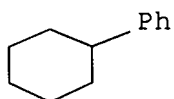
PRAI JP 2002-209221 20020718 <--

AB The **battery** has a cathode, an anode, and an **electrolyte** soln.; where the **electrolyte** soln. contains 0.5-15 % ionic compd., having an alkyl group bond to an arom. ring; and 1-10000 ppm arom. amine, sulfide, phosphite, and/or quinone. The device has the above **battery**; where the **battery** is charged at a current of  $\geq 1$  C.

IT 827-52-1, Cyclohexyl benzene  
(**electrolyte** solns. contg. arom. ionic compds. and arom. amine, sulfide, phosphite, and/or quinone for secondary **batteries**)

RN 827-52-1 HCA

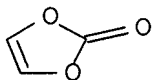
CN Benzene, cyclohexyl- (CA INDEX NAME)



IT 872-36-6, Vinylene carbonate  
(secondary **batteries** contg. arom. ionic compds. and arom. amine, sulfide, phosphite, and/or quinone in **electrolyte** solns. for electronic devices)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electronic device secondary **battery electrolyte**  
arom ionic compd; **battery electrolyte** arom amine  
sulfide phosphite quinone

IT **Battery electrolytes**  
Secondary **batteries**  
(**electrolyte** solns. contg. arom. ionic compds. and arom. amine, sulfide, phosphite, and/or quinone for secondary **batteries**)

IT 7782-42-5, Graphite, uses  
(anode; secondary **batteries** contg. arom. ionic compds. and arom. amine, sulfide, phosphite, and/or quinone in **electrolyte** solns. for electronic devices)



IT 12190-79-3, Cobalt lithium oxide (CoLiO<sub>2</sub>)  
(cathode; secondary **batteries** contg. arom. ionic  
compds. and arom. amine, sulfide, phosphite, and/or quinone in  
**electrolyte** solns. for electronic devices)

IT 96-49-1, Ethylene carbonate 135-88-6, Phenyl- $\beta$ -naphthylamine  
462-06-6, Fluorobenzene 623-53-0, Methyl ethyl carbonate  
**827-52-1**, Cyclohexyl benzene 1120-71-4, 1,3-Propane  
sultone 21324-40-3, Lithium hexafluorophosphate  
(**electrolyte** solns. contg. arom. ionic compds. and  
arom. amine, sulfide, phosphite, and/or quinone for secondary  
**batteries**)

IT 101-02-0, Triphenyl phosphite 139-66-2, Diphenyl sulfide  
**872-36-6, Vinylene carbonate** 903-19-5  
1126-80-3, Butyl phenyl sulfide 7434-44-8, Butyl Diphenyl  
phosphite 35735-32-1 52066-84-9 132843-44-8  
(secondary **batteries** contg. arom. ionic compds. and  
arom. amine, sulfide, phosphite, and/or quinone in  
**electrolyte** solns. for electronic devices)

L48 ANSWER 6 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 139:398049 HCA Full-text

TI Secondary nonaqueous-**electrolyte battery** with  
**electrolyte** containing overcharging inhibitor and sulfur  
compound

IN Kotado, Minoru

PA Mitsubishi Chemical Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003338317	A	20031128	JP 2002-143492	200205 17

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PRAI JP 2002-143492 20020517 <--

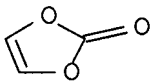
AB The claimed **battery** is equipped with an **electrolyte** soln. contg. a  
compd. which reacts under voltage equal to or higher than max.  
operation voltage during overcharging, a cyclic carbonate ester  
having unsatd. bond and/or an acid anhydride, and a S-contg. org.  
compd. The **battery** provides high safety during overcharging and  
high-load discharge capacity after storage.

IT **872-36-6, Vinylene carbonate**  
(additive; **electrolyte** contg. overcharging inhibitor)

and sulfur compd. for nonaq. **battery**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)



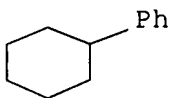
IT 827-52-1, Cyclohexylbenzene

(overcharging inhibitor; **electrolyte** contg.

overcharging inhibitor and sulfur compd. for nonaq. **battery**)

RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST sulfur compd cyclic carbonate anhydride **electrolyte** nonaq  
**battery**; overcharging inhibitor **electrolyte** nonaq  
**battery** safety

IT **Battery electrolytes**

Safety

(**electrolyte** contg. overcharging inhibitor and sulfur  
compd. for nonaq. **battery**)

IT Secondary **batteries**

(lithium; **electrolyte** contg. overcharging inhibitor and  
sulfur compd. for nonaq. **battery**)

IT 108-30-5, Succinic anhydride, uses 872-36-6,  
**Vinylene carbonate**

(additive; **electrolyte** contg. overcharging inhibitor  
and sulfur compd. for nonaq. **battery**)

IT 66-27-3, Methyl methanesulfonate 67-71-0, Dimethylsulfone  
1120-71-4, 1,3-Propanesultone

(**electrolyte** contg. overcharging inhibitor and sulfur  
compd. for nonaq. **battery**)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethyl methyl carbonate  
(**electrolyte** solvent; **electrolyte** contg.)

overcharging inhibitor and sulfur compd. for nonaq.  
**battery)**

IT 21324-40-3, Lithium hexafluorophosphate  
(**electrolyte**; **electrolyte** contg. overcharging  
inhibitor and sulfur compd. for nonaq. **battery)**  
IT 92-52-4, Biphenyl, uses **827-52-1**, Cyclohexylbenzene  
(overcharging inhibitor; **electrolyte** contg.  
overcharging inhibitor and sulfur compd. for nonaq.  
**battery)**

L48 ANSWER 7 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 139:352674 HCA Full-text

TI Nonaqueous **electrolyte** secondary **battery**

IN Mori, Sumio

PA Japan Storage Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003308875	A	20031031	JP 2002-115896	

200204  
18

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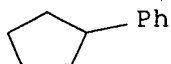
PRAI JP 2002-115896 20020418 <--

AB The secondary **battery** comprises a cathode, an anode, and nonaq.  
**electrolyte** contg.  $\geq 1$  of sultone compds. (e.g. propane sultone,  
propene sultone, butane sultone), cyclic sulfates (e.g. glycol  
sulfate, propylene glycol sulfate), and vinylene carbonates, and  $\geq 1$   
of derivs. of alkylbenzenes having tertiary carbon binding to the Ph  
groups (e.g. cumene, 1,3-diisopropyl benzene, 1,4-diisopropyl  
benzene, 1-Me Pr benzene, 1,3-bis(1-Me Pr)benzene, 1,4-bis(1-Me  
Pr)benzene), cycloalkyl benzenes (e.g. cyclohexyl benzene,  
cyclopentyl benzene), and biphenyl derivs. (e.g. biphenyl, 2-fluoro  
biphenyl, 2-bromo biphenyl, 2-chloro biphenyl). The **battery** is  
excellent in high temp. exposure characteristics.

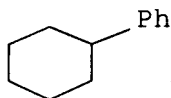
IT **700-88-9**, Cyclopentyl benzene **827-52-1**,  
Cyclohexylbenzene  
(nonaq. **electrolyte** secondary **battery)**

RN 700-88-9 HCA

CN Benzene, cyclopentyl- (CA INDEX NAME)



RN 827-52-1 HCA  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST nonaq **electrolyte** secondary **battery** high temp exposure  
 IT **Battery electrolytes**  
 Secondary **batteries**  
 (nonaq. **electrolyte** secondary **battery**)  
 IT 92-52-4, Biphenyl, uses 98-82-8, Cumene 99-62-7, 1,3-Diisopropyl benzene 100-18-5, 1,4-Diisopropyl benzene 135-98-8, 1-Methylpropyl benzene 321-60-8, 2-Fluoro biphenyl 700-88-9, Cyclopentyl benzene 827-52-1, Cyclohexylbenzene 1014-41-1, 1,4-Bis(1-methylpropyl)benzene 1079-96-5, 1,3-Bis(1-methylpropyl)benzene 1120-71-4, Propane sultone 1633-83-6, Butane sultone 2051-60-7, 2-Chloro biphenyl 2052-07-5, 2-Bromo biphenyl 44508-66-9, 1-Propene-2-sulfonic acid 478784-91-7, Ethylene glycol sulfate (nonaq. **electrolyte** secondary **battery**)

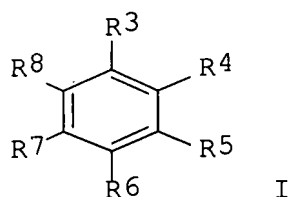
L48 ANSWER 8 OF 14 HCA COPYRIGHT 2007 ACS on STN  
 AN 139:326026 HCA Full-text  
 TI Nonaqueous **electrolyte** solution for Li secondary **battery**  
 IN Noda, Daisuke; Shizuka, Kenji; Kinoshita, Shinichi  
 PA Mitsubishi Chemical Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 2003297423 A 20031017 JP 2002-100543

200204  
02

PRAI JP 2002-100543 20020402 <--  
OS MARPAT 139:326026  
GI

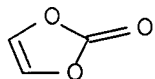


AB The invention relates to a nonaq. **electrolyte** soln. for a Li secondary **battery**, comprising: the sulfone compd. represented by SO<sub>2</sub>(R<sub>1</sub>)(R<sub>2</sub>) [R<sub>1</sub> and R<sub>2</sub> = aryl, and alkyl; R<sub>1</sub> and R<sub>2</sub> may be joined to form a ring structure]; and the arom. compd. with the mol. wt. ≤ 500 and represented by I [R<sub>3</sub>-8 = H, halo, C<sub>1</sub>-12 alkyl, C<sub>5</sub>-12 cycloalkyl, C<sub>6</sub>-12 aryl, and C<sub>11</sub>-14 arylcycloalkyl].

IT **872-36-6, Vinylencarbonate**  
(nonaq. **electrolyte** soln. for Li secondary **battery**)

RN 872-36-6 HCA

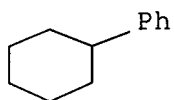
CN 1,3-Dioxol-2-one (CA INDEX NAME)



IT **827-52-1, Cyclohexylbenzene**  
(overcharging prevention agent; nonaq. **electrolyte** soln. for Li secondary **battery**)

RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40  
 ICS H01M004-58  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST nonaq **electrolyte** soln lithium secondary **battery**  
 IT **Battery electrolytes**  
 Secondary **batteries**  
 (nonaq. **electrolyte** soln. for Li secondary  
**battery**)  
 IT Sulfones  
 (nonaq. **electrolyte** soln. for Li secondary  
**battery**)  
 IT **Electrolytes**  
 (nonaq.; nonaq. **electrolyte** soln. for Li secondary  
**battery**)  
 IT 96-49-1, Ethylenecarbonate 105-58-8, Diethylcarbonate  
 (**electrolyte** soln.; nonaq. **electrolyte** soln.  
 for Li secondary **battery**)  
 IT 21324-40-3, Lithium hexafluorophosphate (LiPF<sub>6</sub>)  
 (nonaq. **electrolyte** soln. for Li secondary  
**battery**)  
 IT 872-36-6, Vinylencarbonate  
 (nonaq. **electrolyte** soln. for Li secondary  
**battery**)  
 IT 67-71-0, Dimethylsulfone 132-64-9, Dibenzofuran 827-52-1  
 , Cyclohexylbenzene  
 (overcharging prevention agent; nonaq. **electrolyte**  
 soln. for Li secondary **battery**)  
  
 L48 ANSWER 9 OF 14 HCA COPYRIGHT 2007 ACS on STN  
 AN 139:247999 HCA Full-text  
 TI Nonaqueous **electrolyte** from fluorine-substituted aromatic  
 compound and aromatic hydrocarbon and lithium secondary  
**battery** using the same  
 IN Hinohara, Akio; Hayashi, Takeshi; Ishida, Tatsuyoshi; Saito, Yuki  
 PA Mitsui Chemicals Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003257479	A	20030912	JP 2002-375083	200212 25
				<--	
	CN 1430306	A	20030716	CN 2002-160047	200212 30
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PRAI JP 2001-400435 A 20011228 <--

OS MARPAT 139:247999

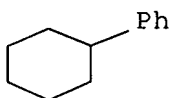
AB The nonaq. **electrolyte** comprises a F-substituted arom. compd., an arom. hydrocarbon compd. made only from C and H, a nonaq. solvent, and a Li-contg. **electrolyte**, wherein contents of the F-substituted arom. compd. and the arom. hydrocarbon compd. in the nonaq. **electrolyte** are 0.1-20 and 0.1-3 %, resp. Also claimed is the lithium secondary **battery** which uses above **electrolyte** and has a mechanism to shut-off the current as the **battery** temp. or the **battery** internal gas pressure exceed certain values, resp. The **battery** exhibited excellent over-charging prevention and excellent high-temp. storage stability.

IT 827-52-1, Cyclohexylbenzene 872-36-6,  
Vinylene carbonate

(nonaq. **electrolyte** from fluorine-substituted arom. compd. and arom. hydrocarbon for lithium secondary **battery**)

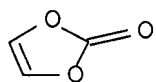
RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)



IC ICM H01M010-40  
ICS H01M006-16  
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
ST nonaq **electrolyte** fluorine substituted arom compd arom  
hydrocarbon; lithium secondary **battery**  
IT Secondary **batteries**  
(lithium; nonaq. **electrolyte** from fluorine-substituted  
arom. compd. and arom. hydrocarbon for lithium secondary  
**battery**)  
IT **Battery electrolytes**  
(nonaq. **electrolyte** from fluorine-substituted arom.  
compd. and arom. hydrocarbon for lithium secondary  
**battery**)  
IT 92-52-4, Biphenyl, uses 101-81-5, Diphenylmethane 321-60-8,  
2-Fluorobiphenyl **827-52-1**, Cyclohexylbenzene  
**872-36-6, Vinylene carbonate** 1120-71-4  
34577-43-0 90076-65-6  
(nonaq. **electrolyte** from fluorine-substituted arom.  
compd. and arom. hydrocarbon for lithium secondary  
**battery**)

L48 ANSWER 10 OF 14 HCA COPYRIGHT 2007 ACS on STN  
AN 139:136057 HCA Full-text  
TI Nonaqueous **electrolyte** solution and secondary lithium  
**battery** using the solution  
IN Onuki, Masamichi; Machino, Hiroshi; Isada, Katsuya  
PA Mitsubishi Chemical Corp., Japan  
SO Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003217654	A	20030731	JP 2002-15808	200201 24

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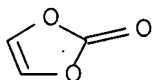
PRAI JP 2002-15808 20020124 <--  
AB The soln. has a Li salt dissolved in a nonaq. org. solvent mixt.;  
where the solvent mixt. contains an arom. hydrocarbon or an arom.  
ether, and a bis- org. sulfonate compd. of the formula R1SO3XO3SR2 (X  
= a C2-4 alkylene group; R1 and R2 = a hydrocarbon group).  
IT **872-36-6, Vinylene carbonate**  
(**electrolyte** solns. contg. arom. ethers or hydrocarbons)



and bis-org. sulfonate compd. for secondary lithium  
**batteries)**

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)

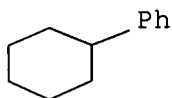


IT 827-52-1, Cyclohexyl benzene

(**electrolyte** solns. contg. arom. ethers or hydrocarbons  
and bis-org. sulfonate compd. for secondary lithium  
**batteries)**

RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary **battery** nonaq **electrolyte**  
solvent org sulfonate compd; **battery electrolyte**  
solvent arom ether hydrocarbon

IT **Battery electrolytes**

(**electrolyte** solns. contg. arom. ethers or hydrocarbons  
and bis-org. sulfonate compd. for secondary lithium  
**batteries)**

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate  
623-53-0, Ethyl methyl carbonate **872-36-6**,  
**Vinylene carbonate** 21324-40-3, Lithium  
hexafluorophosphate

(**electrolyte** solns. contg. arom. ethers or hydrocarbons  
and bis-org. sulfonate compd. for secondary lithium  
**batteries)**

IT 55-98-1, 1,4-Butanediol dimethanesulfonate **827-52-1**,  
Cyclohexyl benzene

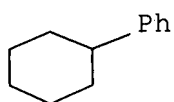
(**electrolyte** solns. contg. arom. ethers or hydrocarbons  
and bis-org. sulfonate compd. for secondary lithium  
**batteries)**

L48 ANSWER 11 OF 14 HCA COPYRIGHT 2007 ACS on STN  
 AN 139:55539 HCA Full-text  
 TI Nonaqueous **electrolyte** solution and secondary lithium  
**battery** using the solution  
 IN Onuki, Masamichi; Machino, Hiroshi; Susuda, Hiroshi  
 PA Mitsubishi Chemical Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

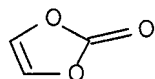
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003187861	A	20030704	JP 2001-387746	200112 20

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PRAI JP 2001-387746 20011220 <--  
 AB The **electrolyte** soln. has a Li salt dissolved in an org. solvent  
 mixt.; where the solvent mixt. contains a thiuram sulfide compd.  
 IT **827-52-1**, Cyclohexyl benzene **872-36-6**,  
**Vinylene carbonate**  
 (org. solvent mixts. contg. thiuram sulfide compds. in Li salt  
**electrolyte** solns. for secondary lithium  
**batteries**)  
 RN 827-52-1 HCA  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



RN 872-36-6 HCA  
 CN 1,3-Dioxol-2-one (CA INDEX NAME)



IC ICM H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST secondary **battery electrolyte** org solvent  
 thiuram sulfide compd  
 IT Secondary **batteries**  
 (lithium; org. solvent mixts. contg. thiuram sulfide compds. in  
 Li salt **electrolyte** solns. for secondary lithium  
**batteries**)  
 IT **Battery electrolytes**  
 (org. solvent mixts. contg. thiuram sulfide compds. in Li salt  
**electrolyte** solns. for secondary lithium  
**batteries**)  
 IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate  
 623-53-0, Ethyl methyl carbonate **827-52-1**, Cyclohexyl  
 benzene **872-36-6**, **Vinylene carbonate**  
 21324-40-3, Lithium hexafluorophosphate  
 (org. solvent mixts. contg. thiuram sulfide compds. in Li salt  
**electrolyte** solns. for secondary lithium  
**batteries**)  
 IT 92-06-8, m-Terphenyl 97-74-5, Tetramethyl thiuram monosulfide  
 137-26-8, Tetramethyl thiuram disulfide  
 (org. solvent mixts. contg. thiuram sulfide compds. in Li salt  
**electrolyte** solns. for secondary lithium  
**batteries**)

L48 ANSWER 12 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 138:173348 HCA Full-text

TI Nonaqueous **electrolyte** solution and secondary  
**battery** using the solution

IN Shima, Kunihiisa; Shizuka, Kenji; Ue, Makoto

PA Mitsubishi Chemical Corporation, Japan

SO PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2003012912	A1	20030213	WO 2002-JP7392	200207 22

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 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,  
 GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC,  
 LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,

NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
 TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,  
 BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU,  
 MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG

JP 2003100344 A 20030404 JP 2001-289868 200109  
 21

JP 3973389 B2 20070912  
 JP 2003100345 A 20030404 JP 2001-289869 200109  
 21

JP 2003100346 A 20030404 JP 2001-289870 200109  
 21

AU 2002318761 A1 20030217 AU 2002-318761 200207  
 22

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 EP 1414099 A1 20040428 EP 2002-747709 200207  
 22

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 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK  
 JP 2003115325 A 20030418 JP 2002-217624 200207  
 26

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 US 2003180626 A1 20030925 US 2003-397320 200303  
 27

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 US 7144660 B2 20061205  
 PRAI JP 2001-227476 A 20010727 <--  
 JP 2001-289868 A 20010921 <--  
 JP 2001-289869 A 20010921 <--  
 JP 2001-289870 A 20010921 <--  
 WO 2002-JP7392 W 20020722 <--

AB The **battery** has a Li-intercalating anode, a cathode, and a nonaq.  
**electrolyte** soln., contg. a Li salt dissolved in an org. solvent;  
 where the soln. contains a partially-hydrolyzed terphenyl, having a  
 di-Ph cyclohexane 10-60% and a cyclohexylbiphenyl 3-35 %; and the  
 soly. of the terphenyl in the **electrolytic** soln. at room temp. is  
 ≥0.5 wt. %. Preferably, the content of diphenylcyclohexane and  
 cyclohexylbiphenyl is 0.01-6.5% and 0.003-3.5 % of the soln. The

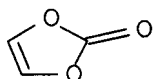
**battery** using the above **electrolyte** soln. has improved safety when it is overcharged, and good performance.

IT 872-36-6, **Vinylene carbonate**

(Li salt **electrolyte** solns contg. partially-hydrolyzed terphenyls for. secondary lithium **batteries**)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)

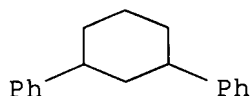


IT 1667-08-9 1973-15-5

(Li salt **electrolyte** solns contg. partially-hydrolyzed terphenyls for. secondary lithium **batteries**)

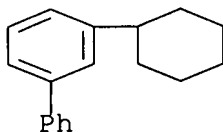
RN 1667-08-9 HCA

CN Benzene, 1,1'-(1,3-cyclohexanediyl)bis- (9CI) (CA INDEX NAME)



RN 1973-15-5 HCA

CN 1,1'-Biphenyl, 3-cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery electrolyte** terphenyl

diphenylcyclohexane cyclohexykbiphenyl safety

IT **Battery electrolytes**

(Li salt **electrolyte** solns contg. partially-hydrolyzed terphenyls for. secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 623-53-0, Ethylmethylecarbonate

872-36-6, Vinylene carbonate 1120-71-4

21324-40-3, Lithium hexafluorophosphate

(Li salt **electrolyte** solns contg. partially-hydrolyzed  
terphenyls for. secondary lithium **batteries**)

IT 84-15-1, o-Terphenyl 92-06-8D, m-Terphenyl, partially-hydrolyzed  
1667-08-9 1973-15-5

(Li salt **electrolyte** solns contg. partially-hydrolyzed  
terphenyls for. secondary lithium **batteries**)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 13 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 137:188305 HCA Full-text

TI Nonaqueous secondary **battery** having enhanced discharge  
capacity retention

IN Hamamoto, Toshikazu; Abe, Koji; Takai, Tsutomu; Matsumori, Yasuo;  
Ueki, Akira

PA Ube Industries, Ltd., Japan

SO U.S. Pat. Appl. Publ., 13 pp., Cont.-in-part of U.S. Ser. No.  
631,518.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2002122988	A1	20020905	US 2001-21130	200110 22
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	US 6866966	B2	20050315		
	JP 2001052735	A	20010223	JP 1999-219708	199908 03
				<--	
	JP 3444243	B2	20030908		
	JP 2002134167	A	20020510	JP 2000-321146	200010 20
				<--	
	JP 2002203594	A	20020719	JP 2000-363656	200011 29
				<--	
PRAI	JP 1999-219708	A	19990803	<--	
	US 2000-631518	A2	20000803	<--	

JP 2000-321146 A 20001020 <--  
 JP 2000-335946 A 20001102 <--  
 JP 2000-363656 A 20001129 <--

OS MARPAT 137:188305

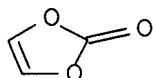
AB The discharge capacity retention of a nonaq. secondary **battery** is enhanced by incorporating into its nonaq. **electrolytic** soln. a small amt. of a substituted diphenyldisulfide deriv. in which each of the di-Ph groups has a substituent such as alkoxy, alkenyloxy, alkynyloxy, cycloalkyloxy, aryloxy, acyloxy, alkanesulfonyloxy, arylsulfonyloxy, alkoxycarbonyloxy, aryloxycarbonyloxy, halogen, CF3, CCl3, or CBr3. Preferably, a small amt. of Me 2-propylcarbonate, 2-propynyl methanesulfonate, 1,3-propanesultone, divinylsulfone, 1,4-butanediol dimethanesulfonate or cyclohexylbenzene is further incorporated.

IT 872-36-6, **Vinylene carbonate**

(nonaq. secondary **battery** having enhanced discharge capacity retention)

RN 872-36-6 HCA

CN 1,3-Dioxol-2-one (CA INDEX NAME)

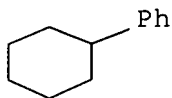


IT 827-52-1, **Cyclohexylbenzene**

(nonaq. secondary **battery** having enhanced discharge capacity retention)

RN 827-52-1 HCA

CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40

INCL 429340000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery electrolyte** additive substituted diphenyldisulfide deriv

IT Secondary **batteries**

(lithium; nonaq. secondary **battery** having enhanced

discharge capacity retention)

IT **Battery electrolytes**

(nonaq. secondary **battery** having enhanced discharge capacity retention)

IT 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0,  $\gamma$ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses 110-71-4, 1,2-Dimethoxyethane 112-48-1, 1,2-Dibutoxyethane 123-91-1, 1,4-Dioxane, uses 539-92-4, Diisobutyl carbonate 554-12-1, Methyl propionate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 629-14-1, 1,2-Diethoxyethane **872-36-6**, **Vinylene carbonate** 4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 85213-04-3, Carbonic acid, methyl 2-methylpropyl ester 90076-65-6 132404-42-3 132843-44-8 205926-54-1 205926-56-3 365454-70-2 365460-35-1 403699-22-9 (nonaq. secondary **battery** having enhanced discharge capacity retention)

IT 51729-83-0, Isopropyl methyl carbonate (nonaq. secondary **battery** having enhanced discharge capacity retention)

IT 55-98-1, 1,4-Butanediol dimethanesulfonate 77-77-0, Divinylsulfone 405-31-2, Bis(4-fluorophenyl)disulfide **827-52-1**, Cyclohexylbenzene 1120-71-4, 1,3-Propanesultone 1142-19-4, Bis(4-chlorophenyl)disulfide 5335-87-5, Bis(4-methoxyphenyl)disulfide 12057-17-9, Lithium manganese oxide limn2o4 16156-58-4, 2-Propynyl methanesulfonate 18715-45-2 31121-13-8, Bis(4-ethoxyphenyl)disulfide 61764-71-4, Methyl 2-propynyl carbonate 107014-69-7 113066-89-0, Cobalt lithium nickel oxide Co0.2LiNi0.8O2 326921-47-5 326921-48-6 (nonaq. secondary **battery** having enhanced discharge capacity retention)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L48 ANSWER 14 OF 14 HCA COPYRIGHT 2007 ACS on STN

AN 136:328190 HCA Full-text

TI Nonaqueous secondary **battery** having enhanced discharge capacity retention

IN Abe, Koji; Ueki, Akira; Hamamoto, Toshikazu

PA Ube Industries, Ltd., Japan

SO Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

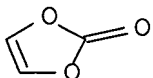
DT Patent



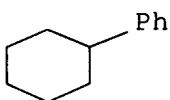
LA English

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	EP 1199766	A2	20020424	EP 2001-124312	200110 19
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	EP 1199766	A3	20040602		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002134167	A	20020510	JP 2000-321146	200010 20
				<--	
	JP 2002203594	A	20020719	JP 2000-363656	200011 29
				<--	
	CN 1350343	A	20020522	CN 2001-142417	200110 19
				<--	
	HK 1044414	A1	20060428	HK 2002-105983	200208 15
				<--	
PRAI	JP 2000-321146	A	20001020	<--	
	JP 2000-335946	A	20001102	<--	
	JP 2000-363656	A	20001129	<--	
OS	MARPAT 136:328190				
AB	A discharge capacity retention of a nonaq. secondary <b>battery</b> is enhanced by incorporating into its nonaq. <b>electrolytic</b> soln. a small amt. of a substituted diphenyldisulfide deriv. in which each of the di-Ph groups has a substituent such as alkoxy, alkenyloxy, alkynyloxy, cycloalkyloxy, aryloxy, acyloxy, alkanesulfonyloxy, arylsulfonyloxy, alkoxycarbonyloxy, aryloxycarbonyloxy, halogen, CF3, CCl3, or CBr3. Preferably, a small amt. of Me 2-propylcarbonate, 2-propynyl methanesulfonate, 1,3-propanesultone, divinylsulfone, 1,4-butanediol dimethanesulfonate or cyclohexylbenzene is further incorporated.				
IT	<b>872-36-6, Vinylene carbonate</b> (nonaq. secondary <b>battery</b> having enhanced discharge capacity retention)				
RN	872-36-6 HCA				
CN	1,3-Dioxol-2-one (CA INDEX NAME)				



IT 827-52-1, Cyclohexylbenzene  
 (nonaq. secondary **battery** having enhanced discharge  
 capacity retention)  
 RN 827-52-1 HCA  
 CN Benzene, cyclohexyl- (CA INDEX NAME)



IC ICM H01M010-40  
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
 ST **battery** secondary nonaq **electrolyte**  
 IT **Battery electrolytes**  
 Secondary **batteries**  
 (nonaq. secondary **battery** having enhanced discharge  
 capacity retention)  
 IT 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 96-47-9,  
 2-Methyltetrahydrofuran 96-48-0,  $\gamma$ -Butyrolactone 96-49-1,  
 Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7,  
 Propylene carbonate 109-99-9, Thf, uses 110-71-4,  
 1,2-Dimethoxyethane 112-48-1, 1,2-Dibutoxyethane 123-91-1,  
 1,4-Dioxane, uses 539-92-4, Diisobutyl carbonate 554-12-1,  
 Methyl propionate 616-38-6, Dimethyl carbonate 623-53-0, Methyl  
 ethyl carbonate 629-14-1, 1,2-Diethoxyethane 872-36-6,  
**Vinylene carbonate** 4437-85-8, Butylene carbonate  
 6482-34-4, Diisopropyl carbonate 7782-42-5, Graphite, uses  
 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide  
 colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium  
 hexafluorophosphate 85213-04-3, Carbonic acid, methyl  
 (2-methylpropyl) ester 90076-65-6 113066-89-0, Cobalt lithium  
 nickel oxide Co0.2LiNi0.8O2 132404-42-3 132843-44-8  
 205926-54-1 205926-56-3 365454-70-2 365460-35-1 403699-22-9  
 (nonaq. secondary **battery** having enhanced discharge  
 capacity retention)  
 IT 55-98-1, 1,4-Butanediol dimethanesulfonate 77-77-0, Divinylsulfone

827-52-1, Cyclohexylbenzene 882-33-7D, Diphenyldisulfide,  
substituted deriv. 1120-71-4, 1,3-Propanesultone 1142-19-4,  
Bis(4-chlorophenyl)disulfide 5335-87-5, Bis(4-  
methoxyphenyl)disulfide 13153-11-2, 1,3-Propanesulfone  
16156-58-4, 2-Propynyl methanesulfonate 31121-13-8,  
Bis(4-ethoxyphenyl)disulfide 51729-83-0, Methyl isopropyl  
carbonate 61764-71-4, Methyl 2-propynylcarbonate 64923-50-8,  
1,3-Butanediol dimethanesulfonate  
(nonaq. secondary **battery** having enhanced discharge  
capacity retention)